

1. This new sight record of Indian Wolf in the river Gandak floodplains might be the extension of the known eastern distribution range of Indian Wolf from the Chhotanagpur plateau in Jharkhand to include the region north of the river Ganges. The presence of a variety of ungulates, cover, and access to large source of water represents an ideal habitat suitable for the survival of the Indian Wolf (Jhala 2003). To this, adds the fact that people here seem not to have forgotten the art of coexistence with predators as in other parts of India (Jhala and Sharma 1997).
2. The Indian Wolf *Canis lupus pallipes* and the Tibetan Wolf *Canis lupus chanco* are considered subspecies of the Gray Wolf *Canis lupus*. Recent DNA studies have shown that there is another wolf that is very genetically different from these two subspecies, so much so that researchers are calling it a new species *Canis himalayensis* with population less than 350 and assessed as critically endangered. It reportedly ranges from north-west Jammu through Himachal to eastern Nepal. Our sighting north of the Ganga, south of Nepal could be that of the Himalayan Wolf. There is no way to substantiate it. At the best, we can only say that the wolf sighted by us in the river Gandak floodplains might be either *Canis lupus pallipes* or *Canis pallipes himalayensis*. Moreover, the encounter with the Indian Wolf in Singhahi Dhaala reveals three unique facts for the area, namely
 - i) That the immediate behavioural response of the villagers and the wolf show us that this is a common feature in the region, and hence, the wolf is well-established in that area and not new colonization.
 - ii) The close and casual approach of the wolves to a sizeable human congregation (20 individuals) in close proximity in broad daylight and no reports of persecution of human beings by the wolves, reveal that there is very little or no man-animal conflict in the area.
 - iii) Strong religious sentiments and beliefs of the local community may have helped conserve the wildlife in general and the prey base of the Indian wolf in particular which needs immediate and thorough investigation.

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3. WILDLIFE MORTALITY FROM VEHICULAR TRAFFIC IN SRIHARIKOTA ISLAND, SOUTHERN INDIA

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Introduction

Increasing road networks severely affect wild fauna and flora, as is well-documented in many studies around the world (e.g., Mader 1984; Fahrig *et al.* 1995; Reed *et al.* 1996; Gibbs

1998). There have been a few studies on the impacts of vehicular traffic on wildlife in India (Gokula 1997; Vijayakumar *et al.* 2001; Chhangani 2004). This note discusses the wildlife casualties due to vehicular traffic in

Sriharikota Island from observations carried out from January 2002 to December 2003.

Study area

Sriharikota is a spindle-shaped island (181 sq. km) situated in Nellore and Tiruvallur districts of Andhra Pradesh and Tamil Nadu respectively. The island is bordered to the east by the Bay of Bengal and to the north, south and west by the Pulicat Lake. The Island comprises of low ridges of sand, marine and aeolian in origin, rising 4.5-6.0 m above msl and sloping from west to east. The water table is at a depth of

c. 2-5 m. Sriharikota has one of the last remaining, largest, and best-preserved tracts of Tropical Dry Evergreen Forest in India. Beside the natural forest, the island has plantations of eucalyptus, casuarina and cashew. The Island is a high security area and under the control of the Indian Space Research Organisation (ISRO) being its satellite launching establishment. There is a network of roads in the forest areas, mostly in the central part of the Island, some of which are subject to regular vehicular traffic during office hours, and less frequently at night during certain periods.

Methods

Data on road-kills was based on incidental records obtained during field trips from January 2002 to December 2003 during a 3-year project on the faunal diversity of the Island. The data collected on road kills pertained to the species killed, its numbers and the habitat characteristics around the site. Most of the field visits were from 07:00-12:00 hrs and to a lesser degree from 15:30-18:30 hrs and 19:30-22:30 hrs. The data discussed is based on 571 field trips carried out during a year.

Discussion

The Three-striped Palm Squirrel *Funambulus palmarum* and Indian Gerbil *Tatera indica* constituted the majority (80.4%) of the road kills among the seven species of mammals recorded in road kills. Both the species are also among the most abundant mammals of the Island (Manakadan *et al.* 2004a). Three records of the road kills of Slender Loris *Loris lydekkerianus*, a Schedule I species under the Wildlife Protection Act (1972) were obtained. The Slender Loris is an arboreal species and is known to move from one forest patch to another by moving on land in open areas, but this makes them highly vulnerable to predators (Singh *et al.* 1999), and as seen in Sriharikota also road kills.

Ten species of birds were recorded in road kills. The Greater Coucal *Centropus sinensis* constituted 28% of the road kills, followed by Indian Little Nightjar *Caprimulgus asiaticus* (17%) and Common Tailorbird *Orthotomus sutorius* (17%). The Greater Coucal is more prone to road kills as it is a weak flier and frequents roads to feed on the road kills of amphibians and reptiles. The Indian Little Nightjar tends to rest on roads at night, and thus gets killed after being dazed by the light of approaching speeding vehicles.

Fifty percent of the 34 recorded reptilian species of the Island was recorded in road kills. Snakes were the most affected group, species (76.5%) and abundance (70.5%) wise. Males of the Common Garden Lizard *Calotes versicolor* tend to get killed more as they engage in courtship/territorial display on roads. Kills of frog species, especially after they

Table 1: Records of the road kills of three faunal groups during 2002-2003

	Total no. of Kills
Mammals	
Indian Gerbille <i>Tatera indica</i>	24
Three-striped Palm Squirrel <i>Funambulus palmarum</i>	13
Golden Jackal <i>Canis aureus</i>	3
Slender Loris <i>Loris lydekkerianus</i>	3
Small Indian Civet <i>Viverricula indica</i>	1
Black-naped Hare <i>Lepus nigricollis</i>	1
Common Mongoose <i>Herpestes edwardsi</i>	1
Birds	
Greater Coucal <i>Centropus sinensis</i>	5
Indian Little Nightjar <i>Caprimulgus asiaticus</i>	3
Common Tailorbird <i>Orthotomus sutorius</i>	3
Spotted Owlet <i>Athene brama</i>	1
Brown Shrike <i>Lanius cristatus</i>	1
Spotted Dove <i>Streptopelia chinensis</i>	1
Oriental Magpie-Robin <i>Copsychus saularis</i>	1
Indian Jungle Crow <i>Corvus [macrorhynchos] culminatus</i>	1
Red-vented Bulbul <i>Pycnonotus cafer</i>	1
Red-wattled Lapwing <i>Vanellus indicus</i>	1
Reptiles	
Saw-scaled Viper <i>Echis carinata</i>	26
Green Whip Snake <i>Ahaetulla nasuta</i>	19
Variiegated Kukri Snake <i>Oligodon taeniolata</i>	12
Russell's Viper <i>Daboia russelii</i>	11
Common Indian Bronzeback <i>Dendrelaphis tristis</i>	9
Buff-striped Keelback <i>Amphiesma stolata</i>	6
Common Cat Snake <i>Boiga trigonata</i>	6
Spectacled Cobra <i>Naja naja</i>	3
Olivaceous Keelback <i>Atrietium schistosum</i>	2
Common Rat Snake <i>Ptyas mucosus</i>	1
Red Sand Boa <i>Eryx johnii</i>	1
Checked Keelback <i>Xenochrophis piscator</i>	1
Common Indian Krait <i>Bungarus caeruleus</i>	1
Common Garden Lizard <i>Calotes versicolor</i>	28
Indian Chameleon <i>Chamaeleo zeylanicus</i>	5
Indian Pond Terrapin <i>Melanochelys trijuga</i>	4
Common Indian Monitor <i>Varanus bengalensis</i>	4

emerged from the water bodies along road on attaining adulthood were common, but is not discussed in this paper.

Overall, more kills occurred during July, comprising mostly of snakes. The kills of snakes occurred after the first showers after the long spell of the dry season. Snakes are more active during this period due to various reasons (Whitaker 1978). Other than accidental kills, we recorded intentional killing of snakes and also birds, such as Grey Junglefowl *Gallus sonneratti* and Greater Coucal *Centropus sinensis* by drivers. Snakes are killed due to the hatred for snakes, while the two bird species are collected for food or killed for fun.

The forest and wildlife of Sriharikota are well protected due to the Island's high security status. However, the wildlife does face problems (Manakadan *et al.* 2004b), one of which

is the threat of road kills. Measures are needed to reduce the incidences of road kills through awareness programmes, check on speed limits of vehicles, creation of speed breakers, culverts and installing sign boards at road kill prone areas. Decrease in the extent of the road network (where possible) could also be explored. All these recommendations have been communicated to the authorities of the spaceport in our report.

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4. FACTORS CAUSING NEST LOSSES IN THE PAINTED STORK *MYCTERIA LEUCOCEPHALA*: A REVIEW OF SOME INDIAN STUDIES

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Losses at egg and nestling stages significantly impact fitness in birds and so their assessment becomes critical in developing conservation strategies for endangered species. The near threatened Painted Stork *Mycteria leucocephala* with a stronghold in India is a flagship of wetlands and heronries (BirdLife International 2001). Although recent researches have explored several aspects of its biology, including sexual size dimorphism (Urfi and Kalam 2006), foraging behaviour (Kalam and Urfi 2008), resource partitioning (Istiaq *et al.* 2010), nesting (Urfi *et al.* 2007; Meganathan and Urfi 2009) and habitat ecology (Sundar 2006), a broad based overview of the various biotic and abiotic factors responsible for nest losses in this species is warranted.

The present study aims to address this shortcoming.

Biotic factors

Predation on Eggs and Nestlings

Nest predation is the single most important ecological factor influencing reproductive success in birds. Ensuring safety from ground predators, chiefly mammals, has been a strong selective force in the evolution of coloniality in birds (Brown and Brown 2001). Most Painted Stork colonies are either located on islands or on large trees on land and so the impacts of direct predation by land animals is minimized. However, mammalian predators can sometimes reach island colonies by swimming when the water is shallow or a bridge